

Customer No. 035884

Attorney Docket No. 2152-3020

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
Lester F. LUDWIG

Serial No.: 10/683,915

Filed: October 10, 2003

For: CONTROLLING AND
ENHANCING ELECTRONIC MUSICAL
INSTRUMENTS WITH VIDEO

Art Unit: 2837

Examiner: Marlon T. FLETCHER

Conf. No.: 3056

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This brief is in furtherance of the Notice of Appeal filed December 11, 2008, and is submitted responsive to the Final Office Action issued July 24, 2008. The filing of this Appeal Brief is timely, the time for response being June 11, 2009 with the concurrent filing of a four-month Petition for Extension of Time and the appropriate fee. Accordingly, appellant submits the following:

TABLE OF CONTENTS

	<u>PAGE</u>
I. REAL PARTIES IN INTEREST	3
II. RELATED APPEALS AND INTERFERENCES	4
III. STATUS OF CLAIMS	6
IV. STATUS OF AMENDMENTS	7
V. SUMMARY OF CLAIMED SUBJECT MATTER	8
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL	11
VII. ARGUMENT	12
CLAIMS APPENDIX	20
EVIDENCE APPENDIX	37
RELATED PROCEEDINGS APPENDIX	42

I. REAL PARTIES IN INTEREST

The real party in interest in this matter is the sole inventor, Lester F. Ludwig (hereinafter "Appellant").

II. RELATED APPEALS AND INTERFERENCES

Currently, there are ten other related appeals which have been filed. These appeals have been filed in the following applications:

Docket No.	App. Ser. No.:	App. filing date:	Appeal filed:
2152-3005	09/812,400	March 19, 2001	January 14, 2008
2152-3014	10/676,926	September 30, 2003	March 31, 2008
2152-3018	10/676,249	September 30, 2003	April 2, 2009
2152-3020	10/683,915	October 10, 2003	December 11, 2008
2152-3023	10/680,591	October 6, 2003	January 31, 2008
2152-3026	10/703,023	November 15, 2003	February 16, 2007
2152-3027	10/702,262	November 5, 2003	October 1, 2007
2152-3030	10/702,415	November 6, 2003	August 8, 2008
2152-3043	11/004,746	December 3, 2004	April 2, 2009
2152-3044	11/040,163	January 21, 2005	May 11, 2009

Appellant notes that there are four additional pending applications containing substantially the same disclosure as the above-identified applications, and which are assigned to the same Examiner as the present application and the above-mentioned applications. Appellant anticipates that each of the four pending applications, if rejected under similar circumstances as the eleven cases in appeal, may unfortunately also require an appeal to the Board of Appeals and Interferences in order to obtain fair examination. Appellant will endeavor to

update this section of the present Appeal Brief when necessary to reflect the current status of such related appeals.

III. STATUS OF CLAIMS

Claims 1-118 are all the claims in the application, claims 1-24 and 63-118 have been withdrawn responsive to a Restriction Requirement. Claims 25-62 remain pending. Claims 25-27, 29-35, 37, 39-46, 48-54, and 62 stand rejected under 35 U.S.C. §102(b) as being anticipated Kimpara et al. (US 5,310,962). Claims 28, 36, 38, 47, and 55-61 stand rejected under 35 U.S.C. §103(a) as being obvious over Kimpara in view of Toriurni (US 6,062,868). Claims 25 and 44 are the independent claims. A copy of the claims appears in the Appendix of Claims on Appeal attached to the Appeal Brief.

IV. STATUS OF AMENDMENTS

Claims 1-118 were filed on October 10, 2003, and claims 1-24 and 63-118 were withdrawn on August 15, 2007 in response to the Restriction Requirement of May 17, 2007. Claims 25, 31-36, 38-42, 44, 50-55, and 57-61 were amended on March 28, 2008 in the response to the non-final Office Action of December 28, 2007. No amendment has been filed subsequent to the Final Office Action issued July 24, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The invention provides for the integration of video into electronic music technology. Cameras mounted on instruments, such as guitars, provide displays during performance, recording, and for creating control signals. Control signals may be extracted from images captured from cameras. The outgoing control signals are MIDI control signals, and extraction algorithms may be selected and controlled by MIDI signals. A range of video signal generation, video signal processing, and camera image capture control functions relevant to the use of video in live performances may be controlled by MIDI signals to unify a common control infrastructure for a live performance environment.

Independent claim 25 describes a system comprising a first image processing element and a processor for extracting and generating control signals from at least one video signal.

The first image processing element receives a first incoming video signal and detects at least one image-related component within an image represented by said first incoming video signal. The processor generates at least one outgoing control signal from the image-related component. The outgoing control signals comprise at least one of a MIDI continuous controller message and a MIDI note message.

Paragraphs [0313]-[0314] describe the high-level features and advantages of claim 25 regarding the control elements and controllers because image processing, image recognition, and image motion tracking utilities can be applied to video signals. In claim 25, such image processing, image recognition, and image motion tracking functions are provided by image processing element and processor.

Paragraphs [0321]-[0331] further describe types of image processing, image recognition, and image motion tracking functions that may be performed by the image processing element and processor of claim 25 including brightness

and color detection, and averaging. Example usage and control signals are shown.

Various exemplary analog, digital, and processor embodiments are discussed, specifically the use of a MIDI interface. The specification provides examples these capabilities and how they may be used to trigger events and continuously control sound, light, and special effects.

Examples of the recognition of human hand posture, position, and proximity to the camera in 3-space are provided. Simple hand orientation, posture geometry, facial expression, lip motion, imaged characters, and imaged patterns may be used to create specific control signals, and dynamic gestures of the hand, arm, body, etc. may be recognized and used to generate control signals. The use of multiple cameras to expand these capabilities in include additional responsiveness to the hand position, posture, and motion in three-dimensional space

Paragraphs [0464-0465] and FIG. 47 describe and illustrate the features of claim 25 as applied to detecting patterns in non-equilibrium chemical reactions and to visually monitor the patterns to derive a multitude of parameters to generate control signals. These control signals may be used to control any one or more of note events, timbre modulation, lighting, and special effects. In addition, Incoming control signals provided by or extracted from video cameras or body position indicators (gestures, dance, and stage positions) can be used to control the evolution and influence the shapes of the chemical patterns.

Independent claim 44 is a companion to claim 25 and describes a method for extracting and generating control signals from at least one video signal. The method comprises receiving a first incoming video signal at a first image processing element, wherein said first image processing element detects posture of a human hand in an image represented by said first incoming video signal, and processing the detected posture in the image, resulting in an outgoing control

signal comprising at least one of a of MIDI format continuous controller message and a MIDI note message, the outgoing control

Independent claim 44 relies upon the same portions of the specification described for independent claim 25.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 25-27, 29-35,37,39-46,48-54, and 62 stand rejected under 35 U.S.C. §102(b) as being anticipated Kimpara et al. (US 5,310,962). Claims 28,36,38,47, and 55-61 stand rejected under 35 U.S.C. §103(a) as being obvious over Kimpara in view of Toriurni (US 6,062,868).

VII. ARGUMENT

A. Prosecution History

1. Restriction Requirement

The application was originally filed with claims 1-118. On May 17, 2009, the Examiner issued a restriction requirement requiring the appellant to elect one of four groups of claims. In response, on August 15, 2007, the appellant elected to prosecute claims 25-62 drawn to extracting and generating control signals from video signals.

2. Non-final Office Action

In the first non-final Office Action dated December 28, 2007, the Examiner rejected independent claims 25 and 44 as being anticipated by Kimpara et al. (US 5,310,962) stating that Kimpara teaches all the features of the independent claims including "processing results in an associated at least one outgoing control signal comprising a signal of MIDI format" in FIG. 1.

In response, on March 28, 2008, the appellant amended the independent claims to recite "to generate at least one outgoing control signal comprising at least one of a MIDI continuous controller message and a MIDI note message." In discussing how the amended independent claims overcome the Kimpara reference, the appellant argued that Kimpara does not teach that MIDI continuous controller message and a MIDI note message are generated in response to the image processing, and further that Kimpara's control signal is limited to a tempo control signal.

Claim 44 is further amended to recite the additional limitation of "the outgoing control signal being generated responsive to the detected posture of the human hand." The appellant argues that this feature is not taught by Kimpara.

2. Final Office Action and Advisory Action

In response, the Examiner issued the Final Office Action on July 24, 2008 in which he maintained the previous rejections stating "The amendments provide little change to the previously submitted claims. MIDI signals are used to control sound output. The sound is inherently based on a note message which controls the sound output, wherein in different sounds are base on different notes. The claims remain rejected." See, Final Office Action, p. 6.

The appellant responded on October 24, 2008 stating that the Examiner's rejections did not address the amendments made in response to the non-final Office Action. The appellant stated that the Examiner's reasons for the rejections referenced features now deleted ("decomposition element", claims 25 and 44) and failed to address newly added features ("MIDI continuous controller message" and "MIDI note message", claims 25 and 44; "the detected posture of the human hand", claim 44).

The appellant further objected to the use of inherency for rejecting the independent claims. The Examiner stated that "Kimpapa et al. inherently discloses at least one outgoing control signal comprising a signal of MIDI format at least one of a MIDI continuous controller message and a MIDI note message" (see, Final Office Action, p. 2) without providing any reasoning to support the determination that the claimed MIDI features, which are allegedly inherent characteristics, necessarily flow from the teachings of Kimpapa.

In argument, the appellant provided a summary of MIDI messages by the MIDI Manufacturers Association, an explanation of MIDI timing concepts, and a list of MIDI controller commands. These establish that the MIDI tempo data of Kimpapa is entirely different than a MIDI continuous controller message or a MIDI note message. Consequently, the MIDI tempo data output of Kimpapa cannot therefore teach or suggest "at least one of a MIDI continuous controller message and a MIDI note message," as required by claims 25 and 44.

In the Advisory Action issued on December 2, 2008, the Examiner stated "the claims are met by the prior art. The applicant's arguments are not convincing. The response will not be entered."

In response, the appellant filed a Notice of Appeal on December 11, 2008.

B. The Examiner Has Not Shown That Kimpara Anticipates The Independent Claims

Independent claims 25 and 44 recite "at least one outgoing control signal comprising at least one of a MIDI continuous controller message and a MIDI note message." Kimpara teaches only that tempo data is transmitted to a MIDI device. See, Kimpara, col. 4: 27-47 ("In the step S6, a tempo control signal or its data are generated based on 35 data of above time difference in the step S6. ... the tempo data of MIDI (Musical Instrument Digital Interface) standard are to be outputted to MIDI device. Meanwhile, it is possible to use this 45 performance tempo control apparatus as a tempo generator of automatic performance apparatus by outputting the tempo clock itself.")

a. Tempo data differs from the MIDI note message. Table 1 of the Summary of MIDI Messages (MIDI Manufacturers Association), Appendix A of appellant's response to the Final Office Action, shows the MIDI Note On and MIDI Note Off messages:

Table 1: MIDI 1.0 Specification Message Summary
Updated 1995 By the MIDI Manufacturers Association

Status	Data Byte(s)	Description
D7----D0	D7----D0	

Channel Voice Messages [nnnn = 0-15 (MIDI Channel Number 1-16)]		

1000nnnn	0kkkkkkk 0vvvvvvv	Note Off event. This message is sent when a note is released (ended). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.
1001nnnn	0kkkkkkk 0vvvvvvv	Note On event. This message is sent when a note is depressed (start). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.

The same Table 1 shows the Timing Clock message:

----- System Real-Time Messages -----	
11111000	Timing Clock. Sent 24 times per quarter note when synchronization is required (see text).

As is shown in Table 1, the Timing Clock message is not the same as an MIDI Note message, and Kimpara's tempo control signal cannot teach claim 25's and claim 44's "at least one outgoing control signal comprising at least one of ... a MIDI note message."

b. Tempo data differs from the MIDI continuous controller message. "Control Change" messages (frequently called *Continuous Controller*) are quite versatile; they are usually generated by a musician using knobs, sliders, footswitches, or pressure on a physical MIDI controller (or MIDI-equipped instrument). While the response to these messages is generally totally up to the receiving device, they are typically used to change the tone, timbre, or volume of an instrument's sound.¹

Table 1 of the Summary of MIDI Messages (MIDI Manufacturers Association), Appendix A of appellant's response to the Final Office Action, shows the format of the MIDI continuous controller message:

1011nnnn	0ccccccc 8vvvvvvv	Control Change. This message is sent when a controller value changes. Controllers include devices such as pedals and levers. Controller numbers 120-127 are reserved as "Channel Mode Messages" (below). (ccccccc) is the controller number (0-119). (vvvvvvv) is the controller value (0-127).
----------	----------------------	--

¹ Extracted from Wikipedia article "MIDI 1.0", accessed at http://en.wikipedia.org/wiki/The_MIDI_1.0_Protocol on June 9, 2009.

The field “nnnn” indicates the MIDI channel number wherein each channel may have up to 128 controllers.

MIDI Controllers can be divided into two main types: those that are variable or continuous (like a knob) and those that are either on or off (like a switch). The architects of MIDI have reserved Controllers 122 and upwards for selecting the various MIDI modes (Local On/Off, All Notes Off, Omni Off, Omni On, Mono On and Poly On). The remaining slots are broken down into Continuous Controllers 0 to 63, Switch Controllers 64 to 95 and Undefined Controllers (free for future use) 96 to 121. MIDI Controllers 0 to 31 are duplicated in slots 32 to 63 for the purpose of generating information with a much higher resolution than 128 steps. Controllers 0 to 31 handle the most significant 'bit' (MSB) of the data while Controllers 32 to 63 handle the least significant bit (LSB).²

Many MIDI devices use a defined set of controllers such as that presented in Appendix C of appellant's response to the Final Office Action. All these controllers relate to the tone, timbre, or volume of an instrument's sound, but not to the tempo control of a musical piece.

For at least this reason, Kimpara's tempo control signal cannot teach claim 25's and claim 44's "at least one outgoing control signal comprising at least one of a MIDI continuous controller message."

C. The Examiner Has Failed To Show That Kimpara's Tempo Control Signal Inherently Teaches A MIDI Continuous Controller Message Or A MIDI Note Message

The Examiner has relied upon inherency to reject independent claims 25 and 44 without providing any reasoning to support the claimed inherency. In

² Extracted from "Sound on Sound, MIDI BASICS: Part 3" web page, accessed at http://www.soundonsound.com/sos/1995_articles/oct95/midibasics3.html on June 9, 2009.

rejecting the independent claims, the Examiner made the following statement: "Kimpapa et al. inherently discloses at least one outgoing control signal comprising a signal of MIDI format at least one of a MIDI continuous controller message and a MIDI note message, the outgoing control signal being generated responsive to content in the image represented by said first incoming video signal." See, Final Office Action, p.2. The Examiner fails to explain why Kimpapa's tempo control signal inherently encompasses the either one or both of a MIDI continuous controller message and a MIDI note message.

The Examiner, when rejecting a claim based on inherency, is required to "provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly Inherent characteristic necessarily flows from the teachings of the applied prior art." See, MPEP 2112, citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Here, the Examiner made the bold and incorrect statement that it is inherent that Kimpapa's tempo control signal includes a continuous controller message and a MIDI note message.

As discussed *supra*, each of the tempo control signal (Timing Clock message), the MIDI note message, and the MIDI continuous controller message is a separate message and the presence of one of these messages does not imply the presence of one of the other messages. Therefore, it is not inherent that Kimpapa's tempo control signal teaches one or both of a MIDI note message and a MIDI continuous controller message. The Examiner's statement of inherency is incorrect.

D. Examiner Does Not Address The Substance Of Appellant's Arguments Made During Prosecution

In response to the non-final Office Action, the appellant amended independent claims to recite "to generate at least one outgoing control signal comprising at least one of a MIDI continuous controller message and a MIDI note message." In the Final Office Action, the Examiner merely repeated his statement of rejection from the non-final Office Action ("wherein said processing

results in an associated at least one outgoing control signal comprising a signal of MIDI format (figure 1)." This is the recitation that was amended. In other words, the Examiner did not address the amendment.

However, the Examiner stated that "Kimpapa et al. inherently discloses at least one outgoing control signal comprising a signal of MIDI format at least one of a MIDI continuous controller message and a MIDI note message" without further explanation of his reasoning why Kimpapa's tempo control signal inherently included at least one of a MIDI continuous controller message and a MIDI note message.

In response to the Final Office Action, the appellant provided the Examiner with sufficient reasoning to demonstrate that Kimpapa's tempo control signal does not teach a MIDI continuous controller message and a MIDI note message, inherently or otherwise. In response to the appellant's reply, in the Advisory Action, the Examiner just stated "the claims are met by the prior art. The applicant's arguments are not convincing. The response will not be entered." No reasoning was ever presented.

MPEP § 707.07(f) requires the Examiner to address the substance of the appellant's arguments:

"In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application.

Where the requirements are traversed, or suspension thereof requested, the examiner should make proper reference thereto in his or her action on the amendment.

Where the appellant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the appellant's argument and answer the substance of it."

The Examiner has never addressed or answered the appellant's arguments that Kimpara's tempo control signal does not teach all the limitations of the independent claims.

E. Claims Currently In Condition For Allowance

As set forth in MPEP 2131, to anticipate a claim, the reference must teach every element of the claim. Since, as discussed above, every element of independent claims 25 and 44 is not taught by Kimpara, appellant submits that the Examiner has not shown these claims are anticipated by Kimpara.

Appellant has demonstrated a number of errors in the rejections of independent claims 25 and 44 and that claims 25 and 44 are patentable. Dependent claims 26-43 and 46-62 are patentable as well by virtue of dependence on a patentable independent claim. Appellant therefore submits that the identified rejections are improper and that the identified claims are allowable over the asserted references. Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the decision rejecting the identified claims and direct the Examiner to pass the case to issue.

Respectfully submitted,

Date: June 11, 2009

By: /C.W. Schmoyer/

Craig W. Schmoyer
Registration No. 51,007
Attorney for Appellant(s)

Customer No. 035884

CLAIMS APPENDIX

1. (WITHDRAWN) A system for capturing real-time video images from a musical instrument, said system comprising:
 - a musical instrument comprising an instrument body and a performance area, wherein said performance area defines an area of said musical instrument where a user physically interacts with said musical instrument;
 - a video camera attached to said instrument body to capture real-time video images of at least a portion of said musical instrument, wherein said video camera generates a video signal representing said real-time video images; and
 - a video output interface providing said video signal to an external system.
2. (WITHDRAWN) The system according to claim 1, wherein said external system comprises a video display visible to an audience.
3. (WITHDRAWN) The system according to claim 1, wherein said video signal is processed by at least one real-time image processor, wherein said at least one real-time image processor is configured to generate an outgoing control signal responsive to said video signal.
4. (WITHDRAWN) The system according to claim 3, wherein said outgoing control signal comprises a signal of MIDI format.
5. (WITHDRAWN) The system according to claim 3, wherein said video signal is processed by at least one real-time image processor to generate a modified video signal, wherein said at least one real-time image processor is controlled by an incoming control signal.
6. (WITHDRAWN) The system according to claim 5, wherein said musical instrument generates said incoming control signal in response to said user interaction with said musical instrument.

7. (WITHDRAWN) The system according to claim 5, wherein said incoming control signal is generated by a physical controller in response to user interaction with said physical controller.
8. (WITHDRAWN) The system according to claim 5, wherein said incoming control signal comprises a signal of MIDI format.
9. (WITHDRAWN) The system according to claim 1, wherein said video signal is recorded by a video recording system.
10. (WITHDRAWN) The system according to claim 1, wherein said video camera is attached to said instrument body in such a location to capture said real-time video images from said performance area of said musical instrument.
11. (WITHDRAWN) The system according to claim 10, wherein said musical instrument comprises a string guitar, and wherein said performance area includes a bridge area of said string guitar.
12. 12. (Withdrawn) The system according to claim 10, wherein said musical instrument comprises a string guitar, and wherein said performance area includes a non-string area of said string guitar.
13. (WITHDRAWN) A method for capturing real-time video images from a musical instrument, said method comprising:
 - providing a musical instrument comprising an instrument body and a performance area, wherein said performance area defines an area of said musical instrument where a user physically interacts with said musical instrument;
 - capturing real-time video images of at least a portion of said musical instrument using a video camera attached to said instrument body, wherein said video camera generates a video signal representing said real-time video images;
 - and
 - providing said video signal to an external system.

14. (WITHDRAWN) The method according to claim 13, wherein said external system comprises a video display visible to an audience.
15. (WITHDRAWN) The method according to claim 13, wherein said video signal is processed by at least one real-time image processor, wherein said at least one real-time image processor is configured to generate an outgoing control signal responsive to said video signal.
16. (WITHDRAWN) The method according to claim 15, wherein said outgoing control signal comprises a signal of MIDI format.
17. (WITHDRAWN) The method according to claim 15, wherein said video signal is processed by at least one real-time image processor to generate a modified video signal, wherein said at least one real-time image processor is controlled by an incoming control signal.
18. (WITHDRAWN) The method according to claim 17, wherein said musical instrument generates said incoming control signal in response to said user interaction with said musical instrument.
19. (WITHDRAWN) The method according to claim 17, wherein said incoming control signal is generated by a physical controller in response to user interaction with said physical controller.
20. (WITHDRAWN) The method according to claim 17, wherein said incoming control signal comprises a signal of MIDI format. \
21. (WITHDRAWN) The method according to claim 13, wherein said video signal is recorded by a video recording system.
22. (WITHDRAWN) The method according to claim 13, wherein said video camera is attached to said instrument body in such a location to capture said real-time video images from said performance area of said musical instrument.

23. (WITHDRAWN) The method according to claim 22, wherein said musical instrument comprises a string guitar, and wherein said performance area includes a bridge area of said string guitar.
24. (WITHDRAWN) The method according to claim 22, wherein said musical instrument comprises a string guitar, and wherein said performance area includes a non-string area of said string guitar.
25. (PREVIOUSLY PRESENTED) A system for extracting and generating control signals from at least one video signal said system comprising:
a first image processing element for receiving a first incoming video signal, wherein said first image processing element detects at least one image-related component within an image represented by said first incoming video signal; and
a processor for processing said at least one image-related component to generate at least one outgoing control signal comprising a at least one of a MIDI continuous controller message and a MIDI note message, the outgoing control signal being generated responsive to content in the image represented by said first incoming video signal.
26. (ORIGINAL) The system according to claim 25, wherein said first incoming video signal originates from a video camera.
27. (ORIGINAL) The system according to claim 26, wherein said video camera is attached to a musical instrument.
28. (ORIGINAL) The system according to claim 26, wherein said incoming video signal is communicated to a video display visible to an audience.
29. (PREVIOUSLY PRESENTED) The system according to claim 25, wherein an incoming control signal is used by said processor to generate said at least one outgoing control signal.
30. (ORIGINAL) The system according to claim 29, wherein said incoming control signal comprises signals of MIDI format.

31. (PREVIOUSLY PRESENTED) The system according to claim 25, wherein said processor performs the processing response to a control signal extraction algorithm selected from a plurality of pre-stored control signal extraction algorithms.
32. (PREVIOUSLY PRESENTED) The system according to claim 25, wherein said processor is configured to recognize at least one pattern in said incoming video signal, wherein said at least one pattern is used to generate said at least one outgoing control signal.
33. (PREVIOUSLY PRESENTED) The system according to claim 32, wherein said processor is further configured to calculate at least one pattern parameter associated with said at least one pattern in said incoming video signal, wherein said pattern parameter is used to generate said at least one outgoing control signal.
34. (PREVIOUSLY PRESENTED) The system according to claim 32, wherein said processor is further configured to recognize at least one gesture in said incoming video signal, wherein said recognition is used to generate said at least one outgoing control signal.
35. (PREVIOUSLY PRESENTED) The system according to claim 34, wherein said processor is further configured to calculate at least one gesture parameter associated with said at least one gesture recognized in said video input signal, wherein said gesture parameter is used to generate said at least one outgoing control signal.
36. (PREVIOUSLY PRESENTED) The system according to claim 25, said system further comprising:
a second video signal image processing element for receiving a second incoming video signal, wherein said second video signal image processing element detects at least one image-related component from said second incoming video signal, wherein

said processor is further configured to processes said at least one image-related component of said second incoming video signal, wherein said processing of said at least one image-related component of said first incoming video signal and said at least one image-related component of said second incoming video signal results in said at least one outgoing control signal.

37. (ORIGINAL) The system according to claim 36, wherein said second incoming video signal originates from a video camera.

38. (PREVIOUSLY PRESENTED) The system according to claim 25, said system further comprising:

a second video signal image processing element for receiving a second incoming video signal, wherein said second video signal image processing element detects at least one image-related component from said second incoming video signal, wherein

said processor is further configured to processes said at least one image-related component of said second incoming video signal resulting in a secondary at least one outgoing control signal comprising least one of a MIDI continuous controller message and a MIDI note message.

39. (PREVIOUSLY PRESENTED) The system according to claim 36, wherein said processor is further configured to recognize at least one pattern in said second incoming video signal, wherein said at least one pattern is used to generate said at least one outgoing control signal.

40. (PREVIOUSLY PRESENTED) The system according to claim 39, wherein said processor is further configured to calculate at least one pattern parameter associated with said at least one pattern in said second incoming video signal, wherein said pattern parameter is used to generate said at least one outgoing control signal.

41. (PREVIOUSLY PRESENTED) The system according to claim 39, wherein said processor is further configured to recognize at least one gesture in said second incoming video signal to generate said at least one outgoing control signal.

42. (PREVIOUSLY PRESENTED) The system according to claim 41, wherein said processor is further configured to calculate at least one gesture parameter associated with said at least one gesture recognized in said video input signal, wherein said gesture parameter is used to generate said at least one outgoing control signal.

43. (ORIGINAL) The system according to claim 25, wherein said first incoming video signal is processed by a real-time image processor to generate a modified video signal, wherein said real-time image processor is controlled by an incoming control signal.

44. (PREVIOUSLY PRESENTED) A method for extracting and generating control signals from at least one video signal said method comprising:

receiving a first incoming video signal at a first image processing element, wherein said first image processing element detects posture of a human hand in an image represented by said first incoming video signal; and

processing the detected posture in the image, resulting in an outgoing control signal comprising at least one of a of MIDI format continuous controller message and a MIDI note message, the outgoing control signal being generated responsive to the detected posture of the human hand.

45. (ORIGINAL) The method according to claim 44, wherein said first incoming video signal originates from a video camera.

46. (ORIGINAL) The method according to claim 45, wherein said video camera is attached to a musical instrument.

47. (ORIGINAL) The method according to claim 45, wherein said incoming video signal is communicated to a video display visible to an audience.

48. (PREVIOUSLY PRESENTED) The method according to claim 44, wherein an incoming control signal is used by said processor to generate said at least one outgoing control signal.

49. (ORIGINAL) The method according to claim 48, wherein said incoming control signal comprises signals of MIDI format.

50. (PREVIOUSLY PRESENTED) The method according to claim 44, wherein said processor performs the processing response to a control signal extraction algorithm selected from a plurality of pre-stored control signal extraction algorithms.

51. (PREVIOUSLY PRESENTED) The method according to claim 44, wherein said processor is configured to recognize at least one pattern in said incoming video signal, wherein said at least one pattern is used to generate said at least one outgoing control signal.

52. (PREVIOUSLY PRESENTED) The method according to claim 51, wherein said processor is further configured to calculate at least one pattern parameter associated with said at least one pattern in said incoming video signal, wherein said pattern parameter is used to generate said at least one outgoing control signal.

53. (PREVIOUSLY PRESENTED) The method according to claim 51, wherein said processor is further configured to recognize at least one gesture in said incoming video signal, wherein said recognition is used to generate said at least one outgoing control signal.

54. (PREVIOUSLY PRESENTED) The method according to claim 53, wherein said processor is further configured to calculate at least one gesture parameter associated with said at least one gesture recognized in said video input signal, wherein said gesture parameter is used to generate said at least one outgoing control signal.

55. (PREVIOUSLY PRESENTED) The method according to claim 44, said method further comprising:

receiving a second incoming video signal at a second video signal image processing element wherein said second video signal decomposition element detects at least one image-related component from said second incoming video signal; and

processing said at least one image-related component of said second incoming video signal, wherein said processing of said at least one image-related component of said first incoming video signal and said at least one image-related component of said second incoming video signal results in said at least one outgoing control signal.

56. (ORIGINAL) The method according to claim 55, wherein said second incoming video signal originates from a video camera.

57. (PREVIOUSLY PRESENTED) The method according to claim 44, said method further comprising:

receiving a second incoming video signal at a second video signal image processing element, wherein said second video signal image processing element detects at least one image-related component from said second incoming video signal; and

processing said at least one image-related component of said second incoming video signal resulting in a secondary at least one outgoing control signal comprising at least one of a MIDI continuous controller message and a MIDI note message.

58. (PREVIOUSLY PRESENTED) The method according to claim 55, wherein said processor is further configured to recognize at least one pattern in said second incoming video signal, wherein said at least one pattern is used to generate said at least one outgoing control signal.

59. (PREVIOUSLY PRESENTED) The method according to claim 58, wherein said processor is further configured to calculate at least one pattern parameter associated with said at least one pattern in said second incoming video signal, wherein said pattern parameter is used to generate said at least one outgoing control signal.

60. (PREVIOUSLY PRESENTED) The method according to claim 58, wherein said processor is further configured to calculate at least one gesture in said second incoming video signal to generate said at least one outgoing control signal.

61. (PREVIOUSLY PRESENTED) The method according to claim 60, wherein said processor is further configured to calculate least one gesture parameter associated with said at least one gesture recognized in said video input signal, wherein said gesture parameter is used to generate said at least one outgoing control signal.

62. (ORIGINAL) The method according to claim 44, wherein said first incoming video signal is processed by a real-time image processor to generate a modified video signal, wherein said real-time image processor is controlled by an incoming control signal.

63. (WITHDRAWN) A real-time video signal generation system, said system comprising:

- an input interface for receiving incoming MIDI control signals;
- a memory unit for storing previously generated video data comprising real-time video images; and
- a processor for generating a video output signal comprising selectable portions of said previously generated video data, wherein said video output signal is generated according to a video generation algorithm that associates said incoming MIDI control signals with particular real-time video images of said stored video data.

64. (WITHDRAWN) The system according to claim 63, wherein said video generation algorithm is selected from a plurality of pre-programmed video generation algorithms.
65. (WITHDRAWN) The system according to claim 64, wherein an incoming control signal of MIDI format is used to select a particular video generation algorithm from said plurality of pre-programmed video generation algorithms.
66. (WITHDRAWN) The system according to claim 63, wherein said real-time video images comprise video stills.
67. (WITHDRAWN) The system according to claim 63, wherein said real-time video images comprise video clips.
68. (WITHDRAWN) The system according to claim 63, wherein said real-time video images comprise graphics animations.
69. (WITHDRAWN) The system according to claim 63, wherein said real-time video images comprise a graphic rendering created from a numerical dynamic simulation.
70. (WITHDRAWN) The system according to claim 63, wherein at least one graphics operation is introduced into said video output signal in response to said incoming MIDI control signals.
71. (WITHDRAWN) The system according to claim 70, wherein said graphics operation comprises a raster graphics operation.
72. (WITHDRAWN) The system according to claim 70, wherein said graphics operation comprises a vector graphics operation.
73. (WITHDRAWN) The system according to claim 70, wherein said graphics operation comprises an overlay graphics operation.

74. (WITHDRAWN) The system according to claim 70, wherein said graphics operation comprises a text rendering operation.
75. (WITHDRAWN) A method for generating a real-time video signal, said method comprising:
- receiving incoming MIDI control signals;
 - storing previously generated video data comprising real-time video images; and
 - generating a video output signal comprising selectable portions of said previously generated video data, wherein said video output signal is generated according to a video generation algorithm that associates said incoming MIDI control signals with particular real-time video images of said stored video data.
76. (WITHDRAWN) The method according to claim 75, wherein said video generation algorithm is selected from a plurality of pre-programmed video generation algorithms.
77. (WITHDRAWN) The method according to claim 76, wherein an incoming control signal of MIDI format is used to select a particular video generation algorithm from said plurality of pre-programmed video generation algorithms.
78. (WITHDRAWN) The method according to claim 75, wherein said real-time video images comprise video stills.
79. (WITHDRAWN) The method according to claim 75, wherein said real-time video images comprise video clips.
80. (WITHDRAWN) The method according to claim 75, wherein said real-time video images comprise graphics animations.
81. (WITHDRAWN) The method according to claim 75, wherein said real-time video images comprise a graphic rendering created from a numerical dynamic simulation.

82. (WITHDRAWN) The method according to claim 75, wherein at least one graphics operation is introduced into said video output signal in response to said incoming MIDI control signals.

83. (WITHDRAWN) The method according to claim 82, wherein said graphics operation comprises a raster graphics operation.

84. (WITHDRAWN) The method according to claim 82, wherein said graphics operation comprises a vector graphics operation.

85. (WITHDRAWN) The method according to claim 82, wherein said graphics operation comprises a overlay graphics operation.

86. (WITHDRAWN) The method according to claim 82, wherein said graphics operation comprises a text rendering operation.

87. (WITHDRAWN) A real-time video signal generation system, said system comprising:

- an input interface for receiving incoming MIDI control signals;
- a video signal interface for receiving an incoming video signal; and
- a real-time video processor for generating a video output signal

comprising a modified version of said incoming video signal, wherein said real-time video processor modifies said incoming video signal according to a video generation algorithm controlled by said incoming MIDI control signals.

88. (WITHDRAWN) The system according to claim 87, wherein said video generation algorithm is selected from a plurality of pre-programmed video generation algorithms.

89. (WITHDRAWN) The system according to claim 88, wherein an incoming control signal of MIDI format is used to select a particular video generation algorithm from said plurality of pre-programmed video generation algorithms.

90. (WITHDRAWN) The system according to claim 87, wherein a video overlay operation is introduced into said video output signal.
91. (WITHDRAWN) The system according to claim 87, wherein said real-time video processor generates said video output signal using a video wipe processing operation.
92. (WITHDRAWN) The system according to claim 87, wherein said real-time video processor generates said video output signal using a video fade processing operation.
93. (WITHDRAWN) The system according to claim 87, wherein said real-time video processor generates said video output signal using a video blend processing operation.
94. (WITHDRAWN) The system according to claim 87, wherein said real-time video processor generates said video output signal using a video solarization processing operation.
95. (WITHDRAWN) The system according to claim 87, wherein said real-time video processor generates said video output signal using a video geometric warping operation.
96. (WITHDRAWN) A method for generating a real-time video signal, said method comprising:
- receiving incoming MIDI control signals;
 - receiving an incoming video signal; and
 - generating a video output signal comprising a modified version of said incoming video signal using a real-time video processor, wherein said real-time video processor modifies said incoming video signal according to a video generation algorithm controlled by said incoming MIDI control signals.

97. (WITHDRAWN) The method according to claim 96, wherein said video generation algorithm is selected from a plurality of pre-programmed video generation algorithms.
98. (WITHDRAWN) The method according to claim 97, wherein an incoming control signal of MIDI format is used to select a particular video generation algorithm from said plurality of pre-programmed video generation algorithms.
99. (WITHDRAWN) The method according to claim 96, wherein a video overlay operation is introduced into said video output signal.
100. (WITHDRAWN) The method according to claim 96, wherein said real-time video processor generates said video output signal using a video wipe processing operation.
101. (WITHDRAWN) The method according to claim 96, wherein said real-time video processor generates said video output signal using a video fade processing operation.
102. (WITHDRAWN) The method according to claim 96, wherein said real-time video processor generates said video output signal using a video blend processing operation.
103. (WITHDRAWN) The method according to claim 96, wherein said real-time video processor generates said video output signal using a video solarization processing operation.
104. (WITHDRAWN) The method according to claim 96, wherein said real-time video processor generates said video output signal using a video geometric warping operation.
105. (WITHDRAWN) A video camera control system comprising:
an input interface for receiving incoming MIDI control signals;

a camera for generating an outgoing video signal, said camera comprising at least one video capture control function; and

a processor for generating camera control signals according to a video capture control algorithm controlled by said incoming MIDI control signals, wherein said camera control signals selectively control each function of said at least one video capture control function of said camera.

106. (WITHDRAWN) The system according to claim 105, wherein said video capture control algorithm is selected from a plurality of pre-programmed video capture control algorithms.

107. (WITHDRAWN) The system according to claim 106, wherein an incoming control signal of MIDI format is used to select a particular video capture control algorithm from said plurality of pre-programmed video capture control algorithms.

108. (WITHDRAWN) The system according to claim 105, wherein one function of said at least one video capture control function is a camera zoom function.

109. (WITHDRAWN) The system according to claim 105, wherein one function of said at least one video capture control function is a camera pan function.

110. (WITHDRAWN) The system according to claim 105, wherein one function of said at least one video capture control function is a camera tilt function.

111. (WITHDRAWN) The system according to claim 105, wherein one function of said at least one video capture control function is a camera focus function.

112. (WITHDRAWN) A method for controlling video camera system comprising:

receiving incoming MIDI control signals;
generating an outgoing video signal using a camera comprising at least one video capture control function; and
generating camera control signals according to a video capture control algorithm controlled by said incoming MIDI control signals, wherein said camera control signals selectively control each function of said at least one video capture control function of said camera.

113. (WITHDRAWN) method according to claim 112, wherein said video capture control algorithm is selected from a plurality of pre-programmed video capture control algorithms.

114. (WITHDRAWN) The method according to claim 113, wherein an incoming control signal of MIDI format is used to select a particular video capture control algorithm from said plurality of pre-programmed video capture control algorithms.

115. (WITHDRAWN) The method according to claim 112, wherein one function of said at least one video capture control function is a camera zoom function.

116. (WITHDRAWN) The method according to claim 112, wherein one function of said at least one video capture control function is a camera pan function.

117. (WITHDRAWN) The method according to claim 112, wherein one function of said at least one video capture control function is a camera tilt function.

118. (WITHDRAWN) The method according to claim 112, wherein one function of said at least one video capture control function is a camera focus function.

EVIDENCE APPENDIX

Appellant relies upon Table 1 of the Summary of MIDI Messages (MIDI Manufacturers Association) for description of the MIDI messages and format. Table 1 is of record in the appellant's response to the Final Office Action. Table 1 is reproduced on the following pages.

Table 1 of 4 - Summary of MIDI Messages

The following table lists many of the major MIDI messages in numerical (binary) order. This table is intended as an overview of MIDI, and is by no means complete.

See also:

- [Table 2](#) - Expanded Messages List (Status Bytes)
- [Table 3](#) - Summary of Control Change Messages (Data Bytes)
- [Table 4](#) - Defined Universal System Exclusive Messages

Additional messages are listed in the printed documentation available from the MMA.

WARNING! Details about implementing these messages can dramatically impact compatibility with other products. We strongly recommend consulting the official [Complete MIDI 1.0 Detailed Specification](#) for additional information.

Table 1: MIDI 1.0 Specification Message Summary
Updated 1995 By the MIDI Manufacturers Association

Status D7----D0	Data Byte(s) D7 --D0	Description

Channel Voice Messages [nnnn = 0-15 (MIDI Channel Number 1-16)]		

1000nnnn	0kkkkkkk 0vvvvvvv	Note Off event. This message is sent when a note is released (ended). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.
1001nnnn	0kkkkkkk 0vvvvvvv	Note On event. This message is sent when a note is depressed (start). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.
1010nnnn	0kkkkkkk 0vvvvvvv	Polyphonic Key Pressure (Aftertouch). This message is most often sent by pressing down on the key after it "bottoms out". (kkkkkkk) is the key (note) number. (vvvvvvv) is the pressure value.
1011nnnn	0ccccccc 0vvvvvvv	Control Change. This message is sent when a controller value changes. Controllers include devices such as pedals and levers. Controller numbers 120-127 are reserved as "Channel Mode Messages" (below). (ccccccc) is the controller number (0-119). (vvvvvvv) is the controller value (0-127).
1100nnnn	0ppppppp	Program Change. This message sent when the patch number changes.

(ppppppp) is the new program number

APPENDIX A

1101nnnn 0vvvvvvv

Channel Pressure (After-touch).
This message is most often sent by pressing down on the key after it "bottoms out". This message is different from polyphonic after-touch. Use this message to send the single greatest pressure value (of all the current depressed keys). (vvvvvvv) is the pressure value.

1110nnnn 01111111
0nnnnnnnn

Pitch Wheel Change.
This message is sent to indicate a change in the pitch wheel. The pitch wheel is measured by a fourteen bit value. Center (no pitch change) is 2000H. Sensitivity is a function of the transmitter.
(111111) are the least significant 7 bits.
(nnnnnnn) are the most significant 7 bits.

Channel Mode Messages (See also Control Change, above)

1011nnnn 0ccccccc
0vvvvvvv

Channel Mode Messages.
This the same code as the Control Change (above), but implements Mode control and special message by using reserved controller numbers 120-127. The commands are:

All Sound Off.
When All Sound Off is received
all oscillators will turn off, and
their volume envelopes are set to
zero as soon as possible.
c = 120, v = 0: All Sound Off

Reset All Controllers.
When Reset All Controllers is received,
all controller values are reset to their
default values. (See specific Recommended
Practices for defaults).
c = 121, v = x: Value must only be zero
unless otherwise allowed
in a specific Recommended
Practice.

Local Control.
When Local Control is Off, all devices
on a given channel will respond only to
data received over MIDI. Played data, etc.
will be ignored. Local Control On
restores the functions of the normal
controllers.
c = 122, v = 0: Local Control Off
c = 122, v = 127: Local Control On

All Notes Off.
When an All Notes Off is received,
all oscillators will turn off.
c = 123, v = 0: All Notes Off
(See text for description of actual
mode commands.)
c = 124, v = 0: Omni Mode Off
c = 125, v = 0: Omni Mode On
c = 126, v = M: Mono Mode On (Poly Off)

where M is the number of channels
 (Omni Off) or 0 (Omni On)
 c = 127, v = 0: Poly Mode On (Mono Off)
 (Note: These four messages also cause
 All Notes Off)

APPENDIX A

System Common Messages

11110000	0iiiiiii 0ddddd 0ddddd 11110111	System Exclusive. This message makes up for all that MIDI doesn't support. (iiiiii) is usually a seven-bit Manufacturer's I.D. code. If the synthesizer recognizes the I.D. code as its own, it will listen to the rest of the message (ddddd). Otherwise, the message will be ignored. System Exclusive is used to send bulk dumps such as patch parameters and other non-spec data. (Note: Real-Time messages ONLY may be interleaved with a System Exclusive.) This message also is used for extensions called Universal Exclusive Messages.
11110001		Undefined. (Reserved)
11110010	01111111 0nnnnnnnn	Song Position Pointer. This is an internal 14 bit register that holds the number of MIDI beats (1 beat = six MIDI clocks) since the start of the song. 1 is the LSB, n the MSB.
11110011	0sssssss	Song Select. The Song Select specifies which sequence or song is to be played.
11110100		Undefined. (Reserved)
11110101		Undefined. (Reserved)
11110110		Tune Request. Upon receiving a Tune Request, all analog synthesizers should tune their oscillators.
11110111		End of Exclusive. Used to terminate a System Exclusive dump (see above).

System Real-Time Messages

11111000		Timing Clock. Sent 24 times per quarter note when synchronization is required (see text).
11111001		Undefined. (Reserved)
11111010		Start. Start the current sequence playing. (This message will be followed with Timing Clocks).
11111011		Continue. Continue at the point the sequence was Stopped.

APPENDIX A

11111100	Stop. Stop the current sequence.
11111101	Undefined. (Reserved)
11111110	Active Sensing. Use of this message is optional. When initially sent, the receiver will expect to receive another Active Sensing message each 300ms (max), or it will be assume that the connection has been terminated. At termination, the receiver will turn off all voices and return to normal (non-active sensing) operation.
11111111	Reset. Reset all receivers in the system to power-up status. This should be used sparingly, preferably under manual control. In particular, it should not be sent on power-up.

All materials, graphics, and text copyright © 1995-2008 MIDI Manufacturers Association Incorporated.
Los Angeles, California. Use is prohibited without written permission.

RELATED PROCEEDINGS APPENDIX

There has been no Board decision for any of the applications identified in the Related Appeals section of this Appeal Brief.